

Amendments to the Claims

Please amend claims 1, 8, 13, 15, 16, and 18 and add new claim 20 as follows:

1. (CURRENTLY AMENDED) A mass flow controller, comprising:
a body portion having a first internal passage and ~~at least a~~ second internal passage formed therein;
a flow control valve coupled to the body portion and in communication with the first and second internal passages;
at least one pressure transducer coupled to the body portion and in communication with at least one of the first ~~internal passage and the second internal passage~~ and second internal passages;
a nonlinear flow restrictor coupled to the second internal passage and configured to produce a ~~high~~ highly compressible laminar flow therethrough ~~coupled to the second internal passage~~;
~~a thermal sensor in communication with at least one of the first internal passage, the second internal passage, and the flow restrictor;~~ and
an exhaust vessel in communication with the flow restrictor.
2. (ORIGINAL) The device of claim 1 wherein the second internal passage is configured to flow a fluid at a pressure greater than a pressure at an output of the flow restrictor
3. (ORIGINAL) The device of claim 1 wherein exhaust vessel is under vacuum.
4. (ORIGINAL) The device of claim 1 wherein exhaust vessel is under near vacuum
5. (ORIGINAL) The device of claim 1 wherein exhaust vessel is under pressure drop of about 0 psia to about 5 psia.
6. (ORIGINAL) The device of claim 1 wherein the flow restrictor is manufactured from a compressed and sintered material.

8. (CURRENTLY AMENDED) The device of claim 1 wherein the flow restrictor is porous.

9. (ORIGINAL) The device of claim 1 wherein the flow restrictor comprises a coiled capillary tube.

10. (ORIGINAL) The device of claim 1 wherein the flow restrictor is positioned downstream of the flow control valve.

11. (ORIGINAL) The device of claim 1 wherein the flow restrictor is configured to enable a pressure drop between a flow restrictor inlet and a flow restrictor outlet of a highly compressible laminar flow of at least 50 percent.

12. (ORIGINAL) The device of claim 1 further comprising at least one pressure transducer in communication with an outlet of the flow restrictor.

13. (CURRENTLY AMENDED) A mass flow controller, comprising:
~~one or more pressure sensors;~~
~~an upstream~~ a flow control valve;
a pressure transducer positioned downstream of the flow control valve; and
a nonlinear restrictor with an inlet and an outlet and positioned downstream of the valve
and the pressure sensor and configured to have ~~a more~~ an incremental pressure per unit of flow at ~~an inlet of the restrictor~~ the inlet at low flows.

14. (ORIGINAL) The device of claim 13 wherein the restrictor comprises a laminar flow element configured to produce a highly compressible laminar flow therethrough.

15. (CURRENTLY AMENDED) The device of claim 13, wherein the restrictor is configured to provide a pressure drop between ~~a restrictor~~ the inlet and ~~a restrictor~~ the outlet of at least about 50% ~~of the pressure at an inlet of the flow restrictor.~~

¹⁵ 16. (CURRENTLY AMENDED) The device of claim 13 wherein the restrictor ~~is~~ comprises a an elongated capillary body having a small hydraulic diameter.

¹⁶ 17. (ORIGINAL) The device of claim 13 wherein the restrictor comprises a sintered body.

¹⁷ 18. (CURRENTLY AMENDED) The device of claim 13 wherein the restrictor comprises a porous body having pores formed in parallel and series ~~formed~~ thereon.

¹⁸ 19. (ORIGINAL) The device of claim 13 wherein the restrictor is formed in a variety of configurations selected from the group consisting of capillary tubes, annular gaps, annular plates, parallel plates, grooved plates, stacked plates, coiled capillary bodies, and coiled sheets.

¹⁹ 20. (NEW) The device of claim 14 wherein the restrictor is configured to enable a pressure drop between the inlet and the outlet of a highly compressible laminar flow of at least 50 percent.